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Mortality and Life Expectancies in EU Acceding Countries – Long-term Outlook

SUMMARY

The European Union has just expanded to include ten new countries. Another two, Bulgaria and Romania, are expected to join in 2007. Croatia and Turkey are strong favourites to follow suit soon. All these add new dimensions to the demography of the Union, because the acceding countries show different levels and patterns of mortality and life expectancy. So far the EU15 had a relatively coherent mortality behaviour with high life expectancies and low infant and child mortalities. The new members add some variation in all indicators and acceding Bulgaria and Romania should enlarge the diversity even more. It is not easy to relate all differences in particular factors such as history, religion, nationality, ethnicity, tradition, political influence, climate and ecological conditions, economic growth and social welfare, income and living standard, healthcare and hygiene, etc. The new EU members and the acceding countries have followed diverse historical paths in the last couple of centuries and mortality indicators show some similarities along with many significant differences. Following the EC and EUROSTAT long-term mortality scenarios this paper examines the prospects of mortality and life expectancy in the EU after the enlargement and tries to draft some main directions of development. As it appears, four countries fit well into the current EU mainstream – Malta, Cyprus, Slovenia and the Czech Republic. Croatia is not very far, despite the political turmoil in the country in 1990s. Poland, Slovakia and Hungary reveal some deficiencies in life expectancy, but it is the Baltic countries that have extremely low life expectancies for males. Bulgaria and Romania must overcome their very high infant and child mortalities in a relatively short time and it is difficult to expect that they will soon join the EU main trend. Turkey with an even higher infant mortality is projected to soon close the divide with these two countries and all three should try hard to reach a one-digit level of infant mortality.

KEY WORDS: mortality, life expectancy, European Union, acceding countries, population projection

On January 1st 2004 the population of the European Union (EU15) was about 380 million. Ten new states – Cyprus, The Czech Republic, Estonia, Hungary, Latvia, Lithuania, Malta, Poland, Slovakia and Slovenia already joined the European Union, thus increasing the total population of the Union (EU25) to 455 million. Bulgaria and Romania are expected to be in by 2007, adding some 30 million people more. Croatia and Turkey are also strong candidates for EU membership. Macedonia, Albania, Serbia and Montenegro are likely to follow suit shortly. Nobody expects that Bosnia and Herzegovina will stay aside for long. Thus the Union is undergoing the greatest enlargement in its history in a relatively short period and by 2010–2015 is likely to have a population of more than 600 million. And if one day Russia, the Ukraine, Belarus, Moldova and the countries of the

Caucasian area join the EU, the population of the Union will be comparable to that of India and China.

Yet mortality levels and patterns in the acceding countries are quite diverse. It is not easy to relate all differences in particular factors such as history, religion, nationality, ethnicity, tradition, political influence, climate and ecological conditions, economic growth and social welfare, income and living standard, healthcare and hygiene, etc. The acceding countries have followed diverse historical paths in the last couple of centuries, and the mortality indicators given in Table 1 (see Appendix) show some similarities, along with many differences.

Currently the European Union has one of the highest life expectancies and lowest infant mortalities in the world. In comparison, the US population's life expectancy at birth is about 75 for males and 80 for females, while infant mortality is about 7 per thousand (preliminary data for 2002, National Vital Statistics Report, Volume 52, Number 13, Center for Disease Control, US Department of Health and Human Services). Life expectancy at birth in Japan is about 78.3 for males and 85.2 for females and infant mortality is at a record low – circa 3 per thousand (Ministry of Health, Labour and Welfare of Japan, http://www.mhlw.go.jp).

Life expectancies of acceding countries

Table 1 shows that contrary to this general layout Bulgaria and Romania suffer from a very high infant mortality, three to four times higher than the current EU15 level. But it is Turkey that is totally out of proportion. This case, the so-called Turkish mortality puzzle, has been much studied by many scientists, research workers, experts and politicians (Riddle, 1997-1998),[1] probably much more than infant mortality in Bulgaria and Romania.

On the other hand Cyprus, Malta, Slovenia and the Czech Republic conform precisely to EU15 levels both in life expectancy and infant mortality; Cyprus, Slovenia and the Czech Republic – also with a remarkably low infant mortality. The rest of the acceding countries are somewhere in between. Poland and Slovakia are not very far also. Hungary is a little behind. The Baltic countries show unusually low life expectancies for males, with Estonia alone with a somewhat lower infant mortality, as a partial compensation.

In contrast to the Czech Republic, Cyprus, Slovenia and Estonia, Bulgaria, Romania and Turkey, all acceding countries, mark the opposite extreme, with an infant mortality about twice as high as in the EU15.

Some more detailed information on life expectancies, that might confirm the above observations, is given in Table 2. Bulgaria and Romania showed a moderate increase of about 1 year and sometimes even less in the last decade of the 20th century. The situation in the Baltic countries was a little bit better, particularly for females in Latvia and Estonia. Lithuania had a minor decrease in life expectancies for males.

The Czech Republic showed the largest increase in life expectancies: 2 to 4 years uniformly for all ages during the last decade and, which is very important, more so for males than for females, thus lessening the gap between the two sexes from 7.8 to 6.4 years at age zero, which is close to the EU15 difference. The lowest difference between the two sexes was

[1] See also: European Observatory on Health Systems and Policies, WHO Regional Office for Europe: http//:www.observatory.dk; Behar, Courbage, Gürsoy, 1999, and *Turkey Health Report*, 2004.

shown by Cyprus and Malta (less than 5 years), which was to be expected, since high life expectancies had already been reached at the end of 1980s. Yet both countries showed a minor increase in the discrepancy between the two sexes during the next decade. Hungary, Malta, Poland, Slovakia and Slovenia also had a uniform increase in life expectancies for all ages and both sexes of about 2 to 3 years, a little bit more so in younger age groups, thus indicating a substantial decrease in infant and childhood mortality. Croatia also belongs to this group despite the political turmoil in the country in the 1990s. Malta however was somewhat an exception with a small difference between the sexes, circa 5 years at birth, while in the other five countries females live 8 to 9 years longer than males on average.

Life expectancies in Cyprus showed a moderate increase during this decade of about 1 year, but more so for younger ages than older ones, and more for females than males, hence leading to a minor increase in the difference between the sexes.

Among the Baltic countries only Latvia showed a distinct increase in life expectancies, but mainly for females, about 2 years, while for males the increase was generally less than one year. Estonia remained at about the same level with a slight increase in life expectancies for females and some decrease for males in some age groups. Lithuania was even more behind with a minor increase for females and a serious decrease for males of all ages. All three countries had a great disparity between the sexes: females lived 10 to 11 years more than males – and this discrepancy seemed to further increase at the end of the last century.

Bulgaria and Romania showed a slow increase in life expectancies for all ages of about half a year, slightly more for females than males. Romania gained more in the young age groups – about a year – while the increase in Bulgaria was half a year. The population of Turkey added 2 years in life expectancy at birth during the 1990s and is likely to approach the level of Bulgaria and Romania in the near future.

Figures 1 and 2 illustrate the main trends in life expectancies for selected populations both in the EU15 and in some acceding countries in the second half of the 20th century. Until 1970 there was no large difference among these countries. Somewhat unexpectedly Bulgarian males and Lithuanian females appear to have had the highest life expectancies at birth in the sixties.

After 1970 one could see an increasing divergence among the countries and this discrepancy progressively deepened towards the end of the century, particularly for the male population. Austria, Italy and Spain displayed an ever more steady rate of increase and the differences between these three countries seemed to diminish, although Austrian females fell somewhat behind. Bulgaria, the Czech Republic, Hungary and Lithuania were obviously behind in female life expectancy, if compared to the three EU15 members (Fig 2).

The leading position of Bulgarian males in the 1960s had already disappeared and meanwhile they lost 2.5 years of life expectancy at birth without any sign of improvement (Fig 1). Hungarian and Lithuanian males demonstrated a similar trend, but unlike Bulgarian males showed some rapid improvement at the turn of the century. Statistical data show that the Lithuanian population suffered a collapse in life expectancy in the mid 1990s (loosing about 2 years of male and more that 1 year of female life expectancy), but soon recovered.[2]

[2] The situation in the Baltic countries in the last decade of the 20th century is discussed in Gaumé and Wunsch (2003).

Actually only Czech males never experienced any serious drawbacks in life expectancy and exhibited a more or less steady increase in longetivity, equal to the rate in Austria, Italy and Spain. Yet a difference still remains between the levels.

Life expectancies in Croatia were very close to that of the Czech Republic for both sexes, but Croatia had a better starting position in 1990 and showed a slower increase in the next decade.

The differences in female life expectancies were not so large (Fig 2). Czech females, who had enjoyed relatively high life expectancies in 1950s and 1960s, lost some momentum, but still maintained a stable rate of increase, similar to that of Austria, Italy and Spain and at the end of the century were close to Austria's level. Lithuanian females have also fallen behind and showed a very uneven progress in expected longetivity. Yet after the collapse in the mid 1990s they showed a rapid recovery. Bulgarian and Hungarian females have been behind almost all the time and showed a slower rate of increase of life expectancy, when compared to Czech females.

Infant and child mortality in acceding countries

Infant mortality varied greatly among acceding countries at the turn of the century. As Table 3 shows Slovenia, Malta, Cyprus and the Czech Republic displayed the lowest level and at the turn of the century these populations appeared entirely within the EU norm. The figures for Malta are somewhat confusing (2002 compared with the previous years), because data from different sources rarely corresponds well.[3] Estonia was very close and is likely to join this group soon. Hungary, Lithuania, Poland, Croatia and Slovakia form the second echelon with an infant mortality of about 7 to 8 per thousand. Latvia was somewhat behind, but might enter the second echelon in the future. Bulgaria and Romania had a very high infant mortality and were very far from European standards. A good presentation of the extreme morbidity and mortality among infants and children in Turkey is given in the publication *Turkey Health Report*, Refik Saydam Hygiene Center, School of Public Health, Ministry of Health of Turkey, Publication No. SB-HM-2004 / 01, Ankara, 2004.

Looking at the past, one may note that the Baltic countries reached a relatively low infant mortality level already in the 1970s and showed moderate progress at later times. Meanwhile Cyprus, the Czech Republic, Malta, Poland, Slovakia, Slovenia and Croatia achieved a more rapid improvement and are currently more or less within EU standards. Poland showed impressive improvement during the last twenty years, managing to decrease infant mortality from 25.5 per thousand in 1980 to 7.5 in 2002. Bulgaria and Romania used to have an enormously high infant mortality all the time and, although Romania managed to reduce it more than three times during the last thirty years, both countries are still far from the average EU level. A similar trend were shown by infant mortality in Turkey, which was about 150 per thousand live-births in 1970, decreasing about four times during the last three decades.

[3] The gaps and inconsistencies in government and other official statistics have been widely discussed in the scientific literature (see: Rechel and McKee, 2003; Božičević et al., 2001; Tcholakov, 2003).

The case of Bulgaria could be explained by the overall chronic shortage of goods, services and resources during the last 30 years, together with the mismanagement of public health and very bureaucratic social security and health insurance systems. This might be valid for Romania and Turkey as well.

A similar picture would appear if child mortality up to age 5 were compared between different European countries (Table 4). One can see that the EU15 are all very close, while some of the acceding countries are far from there standard. The Czech Republic and Slovenia are in an even better position than some members of the EU15, with a remarkably low level of child mortality. The second stratum of acceding countries includes Croatia, Estonia, Hungary, Lithuania, Poland and Slovakia. Latvia is closer to the last echelon which consists of Bulgaria and Romania, with a child mortality about three times higher than in the EU15. Turkey is even worse with child mortality twice higher than in Romania.

The gender difference in the EU15 was normally 1 point or less in favour of females. Only Austria, Greece and Portugal had a 2 point difference. This difference was usually larger in acceding countries. Again the Czech Republic and Slovenia was within the EU15 1 point gap, Poland was close to them, while the rest of the candidates showed 2 points and more. The Baltic countries, particularly Estonia, together with Romania, showed the largest gap.

There are differences in estimating infant mortality in the acceding countries, due to national definitions of live-births, stillbirths and abortions. Bulgarian regulation in regard to registration, for example, allows the death of a proven live-birth under 1,000 g of weight to be registered as an abortion, if it happens before the seventh day of life.[4] Some of the stillborns could also be classified as abortions. It is time to adopt a uniform definition for live-births, infant mortality, etc., throughout the EU and the acceding countries.

Adult mortality in acceding countries

The EU15 seem less homogenous in respect to adult mortality in the age interval 15 to 59, but such a wide age interval is by itself a condition for greater variation (Table 5). The usual male mortality level in the EU15 appears to be about 110 to 120 per thousand. Finland and France slightly exceeded this level, but only Portugal might be considered an exception to the trend. On the other hand, Sweden and Italy showed remarkably low male mortality for these ages. The acceding countries varied greatly in respect to this indicator. Malta was in the same company as Italy and Sweden, with very low adult male mortality. Cyprus was not very far from this group. The Czech Republic, Slovenia and Croatia were in an intermediate position. Rather unexpectedly, Turkey fit well into this group, while all the other countries had adult male mortalities over 200 per thousand, about twice as high as the EU15. The Baltic countries showed the highest and most alarming adult male mortality, over 300 per thousand. Hungary, Romania and Bulgaria came next with also high mortalities in the 200s. Poland and Slovakia were placed just at the level of 200 per thousand.

The variation among the countries was not as great for females. Among the EU15 populations, Italy, Greece, Spain and Sweden had the lowest female adult mortality – about

[4] A detailed explanation of definitions can be found in the Demographic and Healthcare Yearbooks of National Statistical Institute of Bulgaria.

50 per thousand. The highest was in Belgium, the United Kingdom and Northern Ireland – about 67 per thousand, and in Denmark – 76 per thousand – not so different. The average EU15 level seems about 60 per thousand and Cyprus and Malta were already below that. The Czech Republic, Slovenia, Poland, Slovakia and Croatia were above, but not very far from this average. The highest mortality was shown by Estonia, Latvia and Hungary – about twice the current EU15 average. Romania, Lithuania and Bulgaria were a bit below this. Turkish females were close to this group. This fact raises the interesting question whether or not maternal mortality was still an important factor in Southeast Europe, as it has often been assumed to have been in the past (Henry, Baban, 1996; Johnson, Horga, Andronache, 1996; *Turkey Health Report*, 2004).

The relative difference between the sexes correlates to the level of mortality for males and females – the higher that level, the greater the differences observed. For the EU15 populations, Table 5 shows that male adult mortality was about two times as high as female adult mortality, both as an average and in most of the countries. Finland and France, as pointed out before, were a little above this level, due to relatively higher male mortalities than the EU15 average. Greece and Spain were much higher, because of a definitely lower mortality among females than males. About the same was valid also for Portugal. On the opposite side were the United Kingdom and Northern Ireland, Sweden and Denmark, with a small difference between the sexes, and where male mortality was about 60% higher than female. The other EU15 members were close to the average.

Among the acceding countries only Malta was close to the low level in the United Kingdom and Northern Ireland, Sweden and Denmark. All other countries had a higher level of male mortality, two times higher than among females. As expected, the widest gap between the sexes was in the Baltic countries, because of high male mortality levels. Hungary, Romania and Bulgaria were in the middle, due to relatively high levels of mortality for both sexes. Turkey presents an interesting case in Table 5 – male adult mortality was at the level of Croatia and close to Slovenia, and female mortality was similar to Hungary and Estonia.

Dynamics of the age profile of mortality

Figures 3 and 4 show the steadiness of the trend of decreasing male mortality in some reference countries of the EU15, such as Austria, Italy and Spain. In Italy the trend was a bit faster than in Spain, in Austria a bit slower, but all three form a basic mainstream. Of the acceding countries shown in the figures, only the Czech Republic was close to this trend, but there has been no noticeable improvement in the period 1980–2000. Actually, one can notice an increasing difference between Austria and the other reference countries at the turn of the century. As expected, Lithuania seemed very far from the main trend and there was no significant evidence that this gap could be overcome in the foreseeable future. Hungary and particularly Bulgaria showed a serious deterioration in middle-age male mortality and were already closer to Lithuania than to the EU15 average in 2000.

One important peculiarity of male mortality was the sudden increase when approaching age 20, after finishing compulsory education. This was obviously related to incidents, trauma, and causes not related to diseases and indicates a poorer adaptation of male teenagers to independent living. Such a phenomenon might be corrected, in order to greatly

increase male longevity and significantly narrow the gender gap in some acceding countries and in the EU in general.

The age specific dynamics of female mortality was slightly soother than among males, as shown in Figures 5 and 6. There was no similar increase around the age of 20, at least not as visibly, although at this age females enter both working life and their childbearing period. Italy, Spain and Austria demonstrated a steady decrease in mortality and the Czech Republic also showed some improvement, but it is not very clear whether the distance to the EU15 reference countries has diminished for females, as well for males. Lithuania did not demonstrate any significant progress in the decrease of female mortality, after the ages of infant and child mortality. Hungary and Bulgaria followed a similar path, yet Bulgaria still has an unusually high level of infant and child mortality.

The differences between countries presented through these four figures indicate a significant variance for males, which even increased slightly in the period 1980–2000. The corresponding variance for females was not as great, but the increase was more noticeable. One can see that this discrepancy pertains mainly to the acceding countries, whereas the three reference EU15 members were much closer one to another.

Standardized death rates and causes of death

Table 6 shows standardized death rates (SDR), for all ages, per 100,000 inhabitants (both sexes) in most of the acceding countries and in 10 EU15 reference countries, as provided by the WHO, Health for All Database. The average SDR (all causes combined) for the reference countries was about 670 deaths per 100,000 inhabitants and only Denmark had about 100 points more, while the majority of these countries were below the average, particularly Sweden, Italy, France and Spain. The average level of SDR in the acceding countries was much higher – about 980 deaths per 100,000 inhabitants – making up almost 150% of the EU value. Malta, however, was much below this threshold, being exactly at the EU level. The rest of the acceding countries were more diverse. Slovenia had 100 points more than the EU and the Czech Republic another 100 points more. Poland and Croatia were next, not very far form the Czech Republic. The highest level of 1,000 and more deaths per 100,000 inhabitants was in the Baltic countries, Hungary, Bulgaria and Romania, while Latvia and Romania had 100 points more than this level.

Diseases of the circulatory system usually make up much of the total mortality; they are the greatest risk for adults and Table 6 shows that for the EU reference countries this cause explained about 40% of all deaths. France, Spain and Denmark were well below this level, while Greece, Austria and Germany were above it. In fact Greece, with almost 50% of all deaths due to this cause, had a SDR almost twice as high as France. The average SDR for the EU15, due to this cause, seemed to be about 260 deaths per 100,000 inhabitants.

In the acceding countries the percentage of deaths due to diseases of the circulatory system was higher than in the EU reference countries – more than 50%. Bulgaria and Romania had the highest SDR – 700 deaths and more per 100,000 inhabitants which made up more than 60% of all deaths. The average SDR in acceding countries from this cause was about 500 deaths per 100,000 inhabitants, i.e. about two times higher than in the EU15.

Malignant neoplasms are usually the second highest mortality risks in Europe. An exception is France, where this cause, by a small margin, exceeded the risk of death due to diseases of circulatory system – slightly above 30% of all causes of death. For the rest of the reference countries this percentage varied between 20% and 30% and the average level was about 175 deaths per 100,000 inhabitants. Denmark seemed to be 50 points above this level, while Finland was well below.

In the acceding countries the average was about 200 deaths per 100,000 inhabitants, which was below Denmark, but higher than in all other reference countries. Hungary had the highest mortality due to this cause, and the Czech Republic, Slovakia and Poland were also above the average. The lowest values were shown by Malta and Bulgaria, both below the level of the EU15 reference countries. Romania was also close to this group.

Mortality from external causes such as injuries and poisons accounted for a relatively small share of deaths. The average for the EU15 reference countries was about 45 deaths per 100,000 inhabitants and only Finland and France were well above this level, while Germany, Italy and Spain were notably below the average. The average for the acceding countries seemed to be about twice higher than in the reference countries – 83 deaths per 100,000 inhabitants. Malta showed a remarkably low mortality from this cause – only 28.5 deaths per 100,000 inhabitants. No member of the EU15 reference countries had such a low mortality in this regard. Bulgaria was also very close to the EU15 average, just slightly above it. The Czech Republic, Poland, Slovakia and Slovenia were not very far from it. Hungary was a little bit farther, with about 80 deaths per 100,000 inhabitants. The blatant exceptions were the Baltic countries, with a mortality level from this cause close to 150 deaths per 100,000 inhabitants, which was almost two times higher than the average in the acceding countries and more than three times higher than the EU15 reference level.

Most causes of death were closely related to diseases and the corresponding health profiles of the populations. Table 7 shows what proportion of human life was spent in states of health inferior to full health in several European countries. Typical low percentages were 8 for males and 10 for females and in Germany, Italy, Norway, Spain and Sweden it was even below that. Somewhat unexpectedly, Cyprus had one of the highest percentages. The Baltic countries and particularly Lithuania, together with Hungary, Poland and Romania, also showed high values. The percentages were also high among Bulgarian, Croatian, Slovakian and Turkish females. In general it is very difficult to arrive at some conclusion about the regional clustering of this indicator.

Conclusions and projections

One may notice that the variance between the EU15 reference populations was much less than among the acceding countries both in the SDR for all risks combined and in the cause specific SDR. As has been noted the same is true for all other indicators. The EU15 seems more coherent, with a clear trend of decreasing mortality in most if not in all aspects. The acceding countries differ a lot in various aspects. Cyprus, Malta, Slovenia and the Czech Republic were within or very close to the EU15 middle-of-the-road. Cyprus and Malta demonstrated even better life expectancy indicators in many aspects. These four countries are expected to follow the mortality trend in the EU with little exceptions, if any. All others will likely show some difference and depart from the main trend to various degrees.

The following table presents the main trend of decreasing mortality in Europe and

possible variations in the future, similar to the schedule suggested by the EC and EUROSTAT (Van Hoorn, De Beer: 2001):

Year	*2000–2005*	*2020*	*2050*
Males	*Life Expectancy at birth*		
Low	70.0	72.0	75.0
Medium	74.0	77.0	80.0
High	78.0	81.0	84.0
Females	*Life Expectancy at birth*		
Low	76.0	78.0	81.0
Medium	79.0	82.0	84.0
High	82.0	84.0	87.0
Both sexes	*Infant Mortality*		
High	4.0	3.0	2.0
Medium	7.0	5.0	3.0
Low	10.0	7.0	5.0

The main trend is represented by the variant "Medium", while "Low" and "High" give possible biases in life expectancy and mortality in both directions. "High" denotes an optimistic view of the future, and "Low" corresponds to a more sceptical variant relative to the "Medium" schedule, not to a given population. For countries such as Bulgaria, Romania and Turkey, the "Low" infant mortality hypothesis might sound slightly optimistic.

As we have seen, the difference between "High" and "Low" should be assumed to be larger than in the EU15 alone, if acceding countries are taken into account. This difference is expected to be larger for males than for females because variation is higher in male populations. Under the "Low" hypotheses for life expectancy this difference will remain to the end of the projections, but is not expected to significantly increase further. The gap between the sexes will decrease a little in the "Medium" variants, and more rapidly in the "High" ones.

The variant "High" is expected more for the current EU15 populations, while acceding countries vary between all three schedules to different degrees.

The time horizon 2050 must be considered only an orientation, since forecasting life expectancy and mortality over an almost fifty-year period into the future is problematic by nature and the figures should thus be interpreted only tentatively.

Based on the likely development of mortality, and categorized according to the above three variants, the new and the future EU populations could be shown in the following table:

Projection of life expectancy and infant mortality in EU and acceding countries, 2000–2050

Country	*Life expectancy at birth*		*Infant mortality*
	Males	Females	
EU 15	H	H	H
Cyprus	H	H	H
Malta	H	H	M
The Czech Republic, Slovenia	M	M	H
Croatia	M	M	M
Poland, Slovakia, Estonia	L	M	M
Hungary, Latvia, Lithuania	L	L	M
Bulgaria, Romania	L	L	L
Turkey	L	L	XL
H=High, M=Medium, L=Low, X=extreme			

As can be noticed, it is difficult to define a geographical criterion for the grouping of populations. Life expectancy for males in the Baltic countries is not only "Low", but it is actually very "Low" and grouping them together with Poland, Hungary and Slovakia is not very convincing. Poland, Croatia and Slovakia, and perhaps Hungary, might bridge the gap with the EU15 averages sooner than the Baltic countries.

Cyprus and Malta have similar life expectancies, well within the EU15 standards, and the difference in infant mortality for Malta is not that great. Yet there are so many geographical, historical, national, cultural and other differences that it is wise not to group them together. The Czech Republic and Slovenia are expected to move along the same lines, very close or even within the EU mainstream. Croatia is also very close, but still has to decrease its infant mortality.

The most homogenous group seems to be Bulgaria and Romania, both in the same geographical region, with a similar political history and many other similarities. Unless these two countries manage somehow to overcome their very high infant mortality in a relatively short time, it is difficult to expect that they will soon join the EU main trend. Turkey is expected to approach these two countries, and all three should try hard to reach a one-digit level of infant mortality.

APPENDIX

Table 1: Life expectancy and infant mortality in EU and acceding countries, 2002

Country	*Life expectancy at birth**		*Infant mortality (per 1000 life births)*
	Males	*Females*	
EU 15	75.8	81.9	4.5
Bulgaria[a]	68.5	75.4	13.3
Croatia[b]	71.2	78.4	7.0
Cyprus	76.1	81.0	4.9
The Czech Republic	72.1	78.7	4.1
Estonia	65.3	77.1	5.7
Hungary	68.3	76.6	7.2
Latvia	64.8	76.0	9.8
Lithuania	66.3	77.5	7.9
Malta	76.1	81.2	6.1
Poland	70.4	78.3	7.5
Romania[c]	67.7	74.6	14.4
Slovakia	69.9	77.8	7.6
Slovenia	72.7	80.5	3.9
Turkey[d]	66.2	70.9	39.4

* Cyprus 2001, Bulgaria 2000–2002, Romania 2000, Greece 1999.
[a] Data from Yearbook *Население* 2002 [*Population* 2002], National Stat. Institute, Sofia, 2003
[b] Data from WHO, European Health for All Database
[c] Data from EUROSTAT
[d] Data from the State Statistical Institute of Turkey (http://nkg.die.gov.tr)

Source: ES News Release, STAT/04/36 11 March 2004

Table 2: Life expectancy for males and females in acceding countries at specific ages

Country		*Age*									
		0		*1*		*15*		*45*		*65*	
	Year	*M*	*F*	*M*	*F*	*M*	*F*	*M*	*F*	*M*	*F*
Bulgaria	1990	68.0	74.7	68.1	74.6	54.7	61.1	27.3	32.3	12.7	15.1
	2001	68.6	75.2	68.6	75.2	55.0	61.6	27.2	32.8	13.0	15.6
Croatia	1990	68.7	76.4	68.5	76.1	54.9	62.3	27.3	33.3	13.0	16.1
	2001	71.0	78.4	70.8	77.9	57.0	64.0	28.8	34.8	13.5	17.0
Cyprus	1989	74.1	78.6	74.0	78.4	60.4	64.6	32.0	35.3	15.8	17.5
	1998	75.3	80.4	74.8	79.9	61.0	66.1	32.9	37.0	16.0	18.9
The Czech Republic	1990	67.6	75.5	67.5	75.2	53.8	61.4	25.9	32.4	11.7	15.3
	2001	72.1	78.6	71.5	77.8	57.7	64.0	29.3	34.8	14.0	17.3
Estonia	1990	64.8	75.0	64.7	74.7	51.4	61.2	25.3	32.5	12.0	15.7
	2001	64.9	76.4	64.5	76.0	50.9	62.3	24.8	33.6	12.6	17.2
Hungary	1990	65.2	73.7	65.3	73.7	51.6	60.0	24.8	31.6	12.0	15.3
	2001	68.1	76.4	67.6	76.0	53.9	62.1	26.2	33.2	12.9	16.7
Latvia	1990	64.3	74.6	64.3	74.4	51.1	60.9	25.1	32.4	12.1	15.8
	2001	65.2	76.6	64.9	76.4	51.4	62.7	25.5	34.2	12.5	17.8
Lithuania	1990	66.5	76.3	66.3	76.0	52.8	62.4	26.6	33.8	13.4	17.0
	2001	65.9	77.4	65.6	76.8	52.0	63.1	26.1	34.5	13.3	17.6
Malta	1990	73.7	78.1	73.5	77.7	59.7	64.0	31.0	35.0	14.2	16.9
	2001	76.4	81.1	75.8	80.3	62.1	66.5	33.2	36.9	15.6	18.6
Poland	1990	66.5	75.5	66.7	75.5	53.1	61.8	26.0	33.0	12.4	16.1
	2001	70.2	78.3	69.8	77.8	56.0	64.0	28.2	34.9	13.9	17.6
Romania	1990	66.6	73.0	67.5	73.7	54.4	60.5	27.3	31.9	13.1	15.1
	2000	67.7	74.6	68.1	74.9	54.8	61.4	27.3	32.6	13.4	15.7
Slovakia	1995	68.4	76.4	68.2	76.1	54.5	62.4	26.7	33.2	12.7	16.1
	2001	69.6	77.7	69.0	77.1	55.4	63.3	27.3	34.1	13.0	16.8
Slovenia	1995	70.8	78.3	70.2	77.7	56.5	63.9	28.6	34.9	13.6	17.5
	2001	72.4	80.3	71.7	79.6	57.9	65.7	29.9	36.4	14.5	18.8
Turkey	1990	64.2	68.7	...	...	...	...	...	...	...	...
	2001	66.0	70.6	...	...	...	...	...	...	...	...

Note: M=Males, F=Females

Source: EUROSTAT. For Croatia and Greece: WHO, European Health for All Database. For Turkey: the State Statistical Institute of Turkey (http://nkg.die.gov.tr)

Table 3: Infant mortality rate in acceding countries, both sexes, 1960–2002

Country	*1960*	*1970*	*1980*	*1990*	*1995*	*1999*	*2000*	*2001*	*2002*
Bulgaria	45.3	27.1	20.0	14.6	14.5	14.9	13.4	13.8	13.3
Croatia	...	...	20.6	10.7	9.0	7.8	7.4	7.7	7.0
Cyprus	...	26.0	12.0	11.0	9.0	6.0	5.5	4.9	4.9
The Czech Republic	20.1	20.3	16.6	10.8	7.6	4.6	4.1	4.0	4.1
Estonia	31.1	17.7	17.1	11.9	14.8	9.6	8.5	8.8	5.7
Hungary	47.3	35.8	23.0	14.9	10.6	8.4	9.3	8.1	7.2
Latvia	27.0	17.9	15.4	13.7	18.5	11.6	10.5	11.0	9.8
Lithuania	38.0	19.4	14.5	10.3	12.3	8.6	8.5	7.8	7.9
Malta	57.7	26.0	14.9	9.0	8.8	4.7	4.4	3.4	6.1
Poland	54.8	36.7	25.5	19.3	13.4	8.8	8.1	7.6	7.5
Romania	74.5	49.5	29.0	25.0	21.1	18.5	18.6	15.1	14.4
Slovakia	28.6	25.8	20.6	12.0	10.8	8.3	8.5	6.2	7.6
Slovenia	35.1	24.5	15.1	8.2	5.5	4.5	4.9	4.3	3.9
Turkey	...	150.0	95.4	52.4	47.6	43.3	41.9	40.6	39.4

Source: EUROSTAT. For 2002 data from Table 1
For Croatia: WHO, European Health for All Database
For Turkey: WHO, European Health for All Database and the State Statistical Institute of Turkey (http://nkg.die.gov.tr)

Table 4: Child Mortality (per 1000)[a], 2002, in acceding countries and selected reference EU15 members

Country	*Males*	*Females*	*Country*	*Males*	*Females*
Austria	6	4	Italy	5	5
Belgium	6	5	Latvia	15	12
Bulgaria	18	16	Lithuania	11	9
Croatia	9	7	Malta	7	6
Cyprus	7	7	Poland	9	8
The Czech Rep.	5	4	Portugal	7	5
Denmark	6	5	Romania	22	19
Estonia	10	6	Slovakia	9	7
Finland	4	3	Slovenia	5	4
France	5	4	Spain	5	5
Germany	5	4	Sweden	4	3
Greece	7	5	Turkey	50	40
Hungary	10	8	UK[b]	7	6

[a] This refers to child mortality risk, which is defined as the probability of dying before age 5, being actually the life table ${}_5q_0$.
[b] United Kingdom and Northern Ireland

Source: WHO. For Turkey: the State Statistical Institute of Turkey (http://nkg.die.gov.tr)

Table 5: Adult Mortality (per 1000)[a], 2002, for the acceding countries and selected reference EU15 members

Country	*Males*	*Females*	*Country*	*Males*	*Females*
Austria	117	59	Italy	96	49
Belgium	126	67	Latvia	327	118
Bulgaria	219	97	Lithuania	303	103
Croatia	178	72	Malta	87	51
Cyprus	102	48	Poland	204	82
The Czech Rep.	163	72	Portugal	154	65
Denmark	123	76	Romania	235	108
Estonia	322	112	Slovakia	206	79
Finland	135	60	Slovenia	163	71
France	133	60	Spain	120	47
Germany	118	60	Sweden	83	53
Greece	118	48	Turkey	177	112
Hungary	256	112	UK[b]	107	67

[a] This refers to adult mortality risk, which is defined as the probability of a life born to die between age 15 and 59, being actually the life table 45q15.
[b] United Kingdom and Northern Ireland

Source: WHO, World Health Report 2004

Table 6: Standardized Death Rates by causes (both sexes, all ages) per 100,000 inhabitants

Country	*Year*	*All causes*	*Diseases of circulatory system*	*Malignant neoplasms*	*External cause injury and poison*
Austria	2002	649.64	289.12	170.82	46.08
Bulgaria	2002	1,102.62	724.03	154.84	48.84
Croatia	2002	923.32	482.48	213.33	54.80
The Czech Rep.	2002	881.05	455.98	233.75	60.48
Denmark	2002	787.96	265.26	224.99	51.96
Estonia	2002	1,090.58	560.35	200.60	142.19
Finland	2002	675.87	274.96	145.92	68.07
France	1999	629.83	173.61	189.92	59.98
Germany	2001	657.62	286.05	176.57	34.25
Greece	1999	668.14	317.53	161.44	38.35
Hungary	2002	1,034.55	503.90	262.26	81.61
Italy	2000	591.10	231.80	177.38	33.66
Latvia	2002	1,126.71	598.35	193.40	149.84
Lithuania	2002	1,023.22	528.75	195.97	149.72
Malta	2002	672.28	290.31	163.67	28.51
Poland	2001	912.17	431.50	216.46	63.39
Portugal	2000	827.89	308.12	170.08	42.03
Romania	2002	1,145.82	699.47	177.63	65.38
Slovakia	2001	981.76	538.62	222.25	56.17
Slovenia	2002	776.19	290.52	204.85	66.73
Spain	2000	610.70	197.91	170.38	35.72
Sweden	2001	599.50	248.66	157.85	40.63

Source: WHO, European Health for All Database

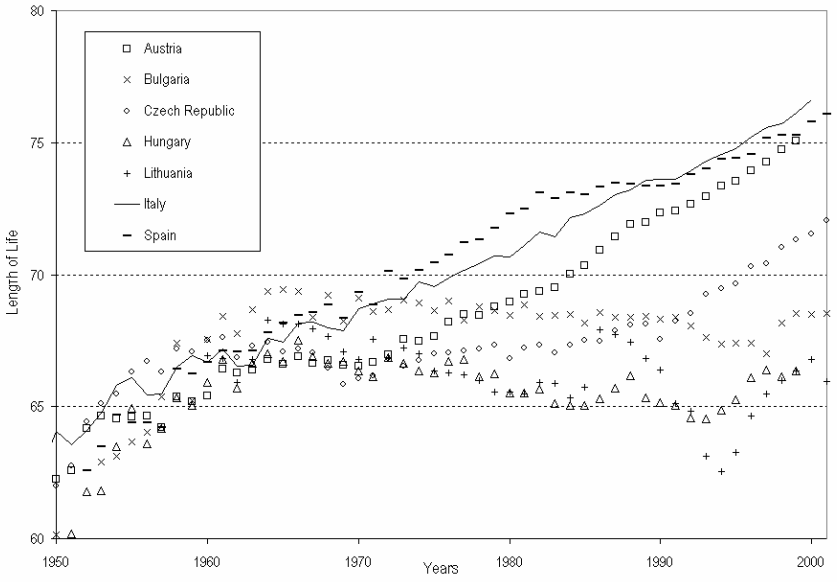
Table 7: Percent of total life expectancy lost through living in less than full health, 2002

Country	*Males*	*Females*	*Country*	*Males*	*Females*
Austria	9.3	10.5	Latvia	10.2	10.9
Belgium	8.3	10.1	Lithuania	10.9	12.8
Bulgaria	9.1	11.3	Malta	8.1	10.0
Croatia	10.1	11.8	Netherlands	8.3	10.4
Cyprus	11.7	13.4	Norway	7.8	9.9
The Czech Rep.	9.1	10.3	Poland	10.6	13.0
Denmark	8.4	10.5	Portugal	9.4	10.9
Estonia	9.2	10.5	Romania	10.3	13.0
Finland	8.1	9.9	Slovakia	9.6	11.4
France	8.7	10.6	Slovenia	8.4	10.2
Germany	7.8	9.3	Spain	8.2	9.3
Greece	8.9	10.0	Sweden	7.9	9.5
Hungary	10.0	11.2	Switzerland	8.5	9.7
Iceland	8.1	10.0	Turkey	9.8	12.9
Italy	7.8	9.5	UK[a]	8.8	10.4

[a] United Kingdom and Northern Ireland

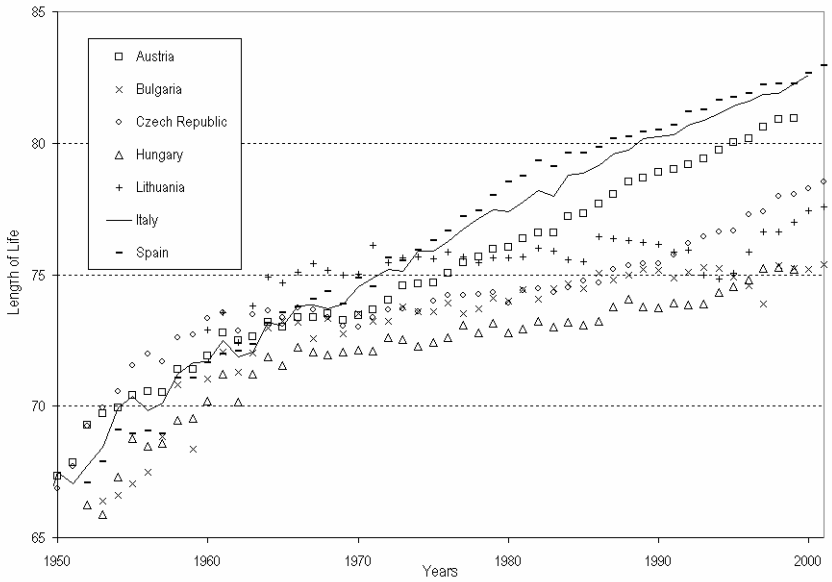
Source: WHO, Core health indicators

Figure 1: Life expectancy at birth, males 1950–2000



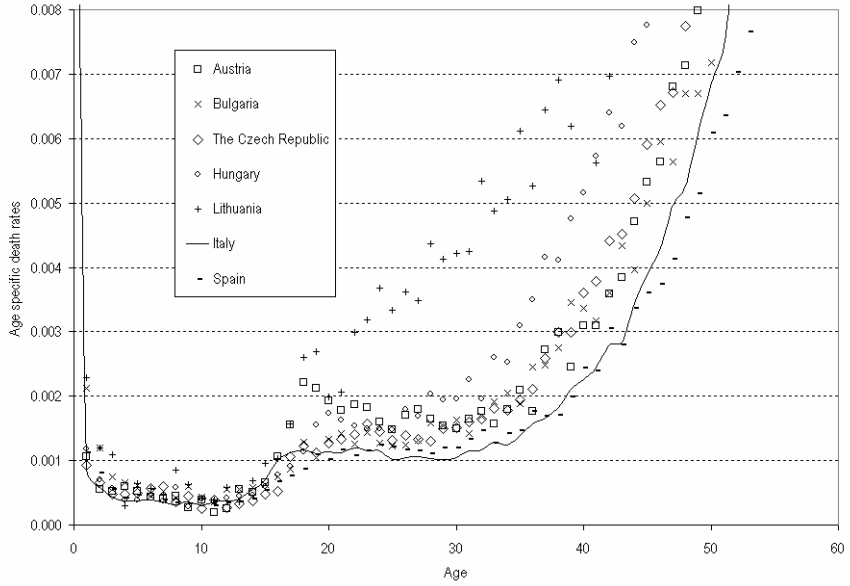
Source: Human Mortality Database, University of California, Berkeley

Figure 2: Life expectancy at birth, females 1950–2000



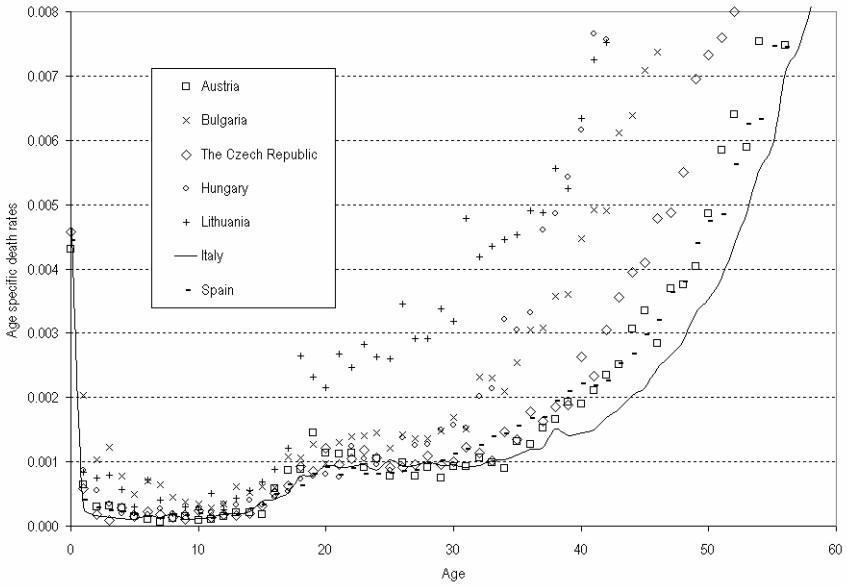
Source: Human Mortality Database, University of California, Berkeley

Figure 3: Age profile of mortality, males 1980



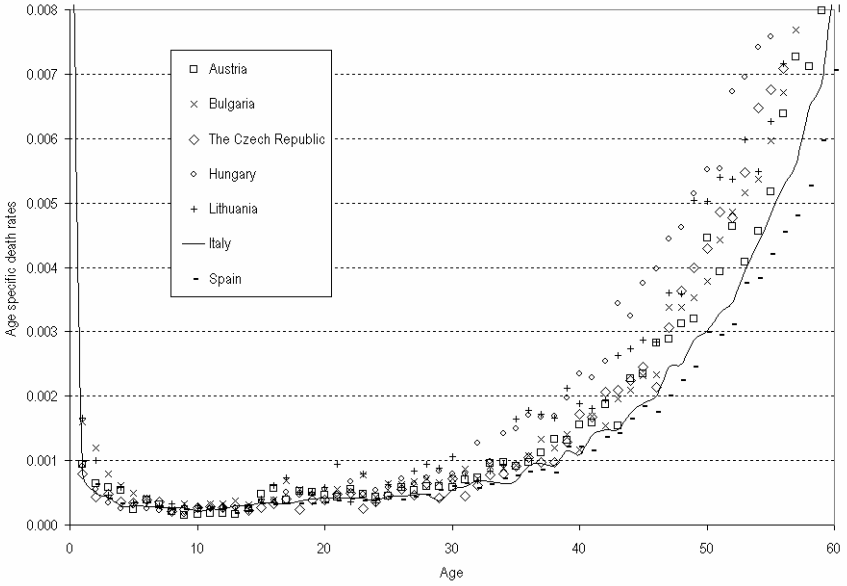
Source: Human Mortality Database, University of California, Berkeley

Figure 4: Age profile of mortality, males 2000



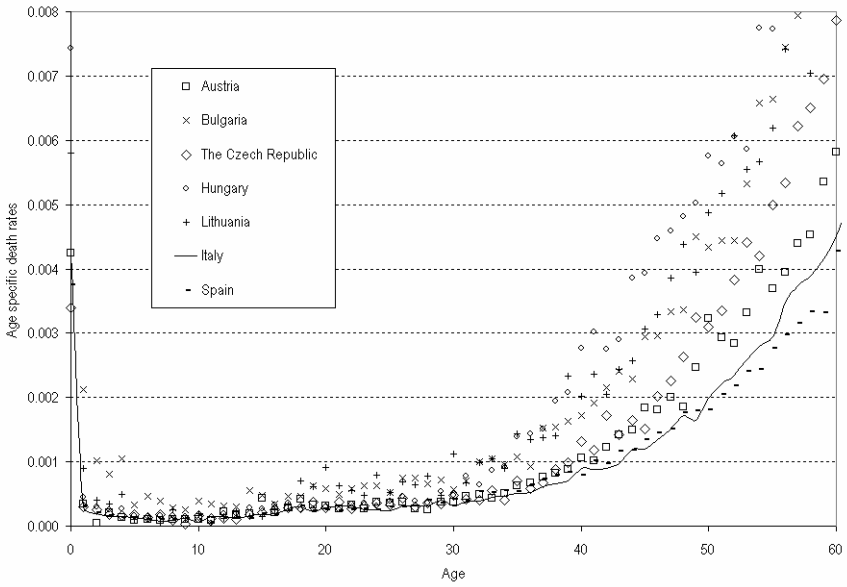
Source: Human Mortality Database, University of California, Berkeley

Figure 5: Age profile of mortality, females 1980



Source: Human Mortality Database, University of California, Berkeley

Figure 6: Age profile of mortality, females 2000



Source: Human Mortality Database, University of California, Berkeley

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Nikola Čolakov

MORTALITET I OČEKIVANO TRAJANJE ŽIVOTA U ZEMLJAMA KOJE SU PRISTUPILE EUROPSKOJ UNIJI – DUGOROČNI IZGLEDI

SAŽETAK

Europska unija nedavno je proširena s deset novih zemalja, a očekuje se da će joj se 2007. pridružiti još dvije – Bugarska i Rumunjska. Hrvatska i Turska imaju velike šanse ubrzo slijediti njihov primjer. Sve to daje nove dimenzije demografiji Unije jer zemlje pristupnice otkrivaju različite razine i uzorke mortaliteta i očekivanog trajanja života. Dosad je EU 15 imala relativno koherentno kretanje mortaliteta s očekivanim visokim trajanjem života te niskim mortalitetom dojenčadi i djece. Nove članice pridaju neke razlike svim indikatorima, a Bugarska i Rumunjska će još više uvećati tu raznolikost. Nije jednostavno povezati sve razlike kako bi se izdvojili činioci kao što su povijest, religija, nacionalnost, etničnost, tradicija, politički utjecaj, klimatski i ekološki uvjeti, gospodarski rast i društveno blagostanje, dohodak i životni standard, zdravstvena skrb i higijena itd. Nove članice EU i one pridružene prošle su različite povijesne putove tijekom nekoliko prošlih stoljeća, a indikatori mortaliteta pokazuju neke sličnosti usporedo s mnoštvom velikih razlika. Prema dugoročnim scenarijima mortaliteta Vijeća Europe i EUROSTAT-a, u radu se istražuju perspektive mortaliteta i očekivanog trajanja života u EU nakon proširenja te se pokušavaju skicirati neki glavni smjerovi razvoja. Kako se čini, četiri zemlje dobro se uklapaju u sadašnji trend: Malta, Cipar, Slovenija i Češka. Hrvatska nije daleko usprkos političkom previranju devedesetih godina. Poljska, Slovačka i Mađarska imaju neke nedostatke u očekivanom trajanju života, dok je u baltičkim zemljama očekivano trajanje života muškaraca iznimno nisko. Bugarska i Rumunjska moraju prevladati svoj vrlo visoki mortalitet dojenčadi i djece u relativno kratkom roku, ali je teško očekivati da će se brzo uklopiti u trend EU. Predviđa se da će Turska, čiji je mortalitet dojenčadi još viši, ubrzo premostiti jaz prema tim dvjema zemljama te će se sve tri morati jako potruditi da dosegnu jedinstvenu brojčanu razinu mortaliteta dojenčadi.

KLJUČNE RIJEČI: mortalitet, očekivano trajanje života, Europska unija, zemlje pristupnice, projekcija stanovništva

Nikola Tcholakov

MORTALITÉ ET ESPÉRANCE DE VIE DANS LES NOUVEAUX PAYS MEMBRES DE L'UNION EUROPÉENNE : PERSPECTIVES À LONG TERME

RÉSUMÉ

L'Union Européenne s'est récemment élargie à 25 membres, et prévoit d'en accueillir deux nouveaux en 2007 : la Bulgarie et la Roumanie, qui seront très probablement bientôt suivies par la Croatie et la Turquie. Ces changements apportent de nouvelles dimensions à la démographie de l'Union, car les nouveaux adhérents présentent divers taux et grilles de mortalité et d'espérance de vie.

Jusqu'à présent, les 15 connaissaient une courbe de mortalité relativement cohérente, avec une espérance de vie élevée et une faible mortalité périnatale et infantile. Les nouveaux membres apportent certaines variations à ces indicateurs, et la Bulgarie ainsi que la Roumanie vont creuser plus nettement encore les différences. Il n'est pas facile de dégager parmi toutes ces différences les divers facteurs que sont l'histoire, la religion, la nationalité, l'appartenance ethnique, la tradition, l'influence de la politique, les conditions climatiques et écologiques, la croissance économique et la prospérité sociale, les revenus et le niveau de vie des citoyens, les services de santé et l'hygiène, etc. Les nouveaux membres de l'UE et les candidats à l'adhésion ont connu des destins historiques différents au cours des dernières décennies, et les indicateurs de mortalité présentent à la fois certaines ressemblances et de multiples différences notables. S'appuyant sur les scénarii à long terme du Conseil de l'Europe et d'Eurostat, cet article se penche sur les perspectives de mortalité et d'espérance de vie au sein de l'UE après l'élargissement et essaye de dégager quelques orientations majeures. Il semble que quatre pays s'intègrent bien dans la courbe actuelle : Malte, Chypre, la Slovénie et la République tchèque. Bien qu'ayant traversé une tourmente politique dans les années 90, la Croatie n'en est pas éloignée. La Pologne, la Slovaquie et la Hongrie présentent quelques faiblesses au niveau de l'espérance de vie, quant aux pays baltes ils affichent une espérance de vie pour les hommes extrêmement basse. La Bulgarie et la Roumanie doivent juguler leur très fort taux de mortalité périnatale et infantile dans un délai assez court, mais on peut difficilement s'attendre à ce qu'elles rejoignent rapidement la courbe communautaire. On prévoit que la Turquie, dont la mortalité périnatale est encore supérieure, réussira rapidement à surmonter le fossé qui la sépare de ces deux pays. Ils devront tous trois consentir de gros efforts pour atteindre la mortalité périnatale de la Communauté.

MOTS CLÉS : mortalité, espérance de vie, Union Européenne, pays adhérents, projection démographique